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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HOLTON, STEVEN E

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/743,106	<b>Applicant(s)</b> NAGEL, UWE	
	<b>Examiner</b> Steven E. Holton	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 10-12 is/are rejected.
- 7) ☒ Claim(s) 7 and 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This Office Action is made in response to applicant's amendment filed on 9/29/2008. Claims 1-12 are currently pending in the application. An action follows below:

#### ***Response to Arguments***

2. Applicant's arguments, see pages 7 and 8, filed 9/29/08, with respect to the rejection(s) of claim(s) 1 and 10-12 under 35 USC 103(a) have been fully considered and are persuasive in light of the amendments to the claims. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of previously applied prior art, Naka.

The Examiner disagrees with the Applicant's argument that Naka fails to disclose a predefined video signal for adjusting the scanning frequency or scanning phase of an image-reproducing device. As noted in the previous Office Action, Naka et al. discloses using a test pattern having black and white gradations for use in adjusting the phase of sampling clocks of a display device. A test pattern is a predefined image with known values for use in testing and adjustment of a device.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6, 8, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (USPN: 6597370) in view of Choi (USPN: 6404422), and in further view of Naka et al. (USPN: 5990968), hereinafter Naka.

Regarding claims 1, 10, 11, and 12, the claims are drawn to a associated methods of operation and associated display devices, Lee discloses a method for adjusting the scanning phase of an analog/digital converter for an image reproducing device with a method of operation including applying an analog video signal to the image-reproducing device (Fig. 2, the input R,G,B analog signal is applied to the LCD module, element 70), comparing the digital image data buffered in the image memory (Fig. 2, element 60) with predefined data (Fig. 2, element 20 stores the predefined data) that corresponds to the analog video signal (col. 4, lines 7-67; lines 50-67 particularly discuss comparing reference data with sampled data to determine a difference between signals). Lee further discloses changing the scanning phase of the scanning clock based that is used for scanning in the analog display data (col. 4, lines 50-67) this is performed so that the predefined data and the input data are made to match (Fig. 3,

shows the flow chart of testing the data and changing the scanning phase until the data matches).

However, Lee does not disclose adjusting the scanning frequency and Lee does not expressly disclose applying a predefined analog video signal. Lee only discusses adjusting the phase of the scanning clock that is output by the phase locked loop (Fig. 2, element 30, the PLL).

Choi discloses a display device and method for controlling a liquid crystal display device that includes adjusting the phase and frequency of a phase locked loop used to operate an analog-to-digital converter (abstract; col. 5, lines 11-16). Fig. 2 shows the system of Choi where an analog image signal is input into an A/D converter, scanned using the frequency of the PLL circuit section and then calculations of the data are performed that allow for adjustment of the phase and frequency of the output of the PLL circuit section.

At the time of invention it would have been obvious to modify the teachings of Lee with the teachings of Choi. The system of Lee which is able to adjust the phase of the phase locked loop timing circuit could be modified based on the teachings of Choi so that both the phase and frequency of the PLL circuit could be adjusted. The motivation would be to produce a system that could automatically adjust the screen status of a display device by properly adjusting and shifting the phase and frequency of input analog signal (Choi, col. 1, lines 51-56). Thus, it would have been obvious to modify the teachings of Lee with the teachings of Choi to produce a system that compares an input signal with a predetermined reference signal so that the scanning

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frequency and phase of an analog-to-digital converter could be adjusted so that the scanned image data matches the inputted analog data.

However, neither Lee nor Choi discloses using a predefined analog video signal.

Naka discloses a system for adjusting the phase of sampling clocks using an analog test pattern. The test signal for use in the measurement is made having black and white signals of predetermined levels including variations between the levels occurring frequently (col. 6, lines 48-54). Thus, the test pattern of Naka is a predefined analog video signal.

At the time of invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Lee and Choi with the teachings of Naka. The methods of adjusting the phase and frequency of a sampling clock of an analog-to-digital converter disclosed by Lee and Choi could be combined with the test signal described by Naka having a frequently changing black and white signal. The motivation for doing so would be to produce a system to automatically adjust a sampling phase easily and with more precision (Naka, col. 2, lines 41-43). Thus, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lee, Choi, and Naka to produce a method of adjusting the scanning frequency and phase of an analog-to-digital converter in an image display system as described in claims 1, 10, 11, and 12.

Regarding claim 2, Naka discloses using a test pattern predefined changes between black and white colors, but does not expressly disclose a regular pattern in the horizontal direction.

At the time of invention it would have been a matter of design choice for one of ordinary skill in the art to use a pattern that changes in the horizontal direction or the vertical direction. Horizontally changing test patterns are known in the art for adjusting display devices.

Regarding claim 3, Naka discloses the test pattern comprises different brightness values (col. 6, lines 48-54). The predetermined area of Lee could comprise any specific selection of the test pattern described by Naka. By selecting a section of the display with multiple changes between white and black, the marking could comprise multiple pixels with white values and multiple pixels with black values.

Regarding claim 4, Naka discloses the brightness values of the pixels vary by a maximum value of black to white (col. 6, lines 48-54).

Regarding claim 5, all of the displays of Lee, Choi, and Naka have a predetermined resolution and it would be obvious to one of ordinary skill in the art to select a test pattern that is adapted to the resolution of the display device. Lee further uses a scaling device (Fig. 2, element 50) to adjust the input testing signal so that it correctly matches the resolution of the display device (col. 4, lines 23-32). Thus, it would have been obvious to one of ordinary skill in the art to use a scaler to adjust the test pattern to match a predetermined resolution or to input a test pattern that requires no resolution change.

Regarding claim 6, Naka discloses a test pattern with a changing dot pattern (Figs. 3A-3C show an input signal, the dot clock/sampling clock and correctly outputted display information). The changing test pattern based on a dot clock frequency

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represents multiple pixels transmitted in order for display. Thus, Naka discloses that a predetermined number of consecutive pixels are checked against predefined data (Figs. 4A and 4B show comparisons between the expected results and the sampled output). Lee further discloses testing a predetermined area of the input data against the test data. It would have been a matter of design choice to choose the predetermined area to be a group of consecutive pixels at the beginning of a line, the end of a line, or some other selected group of pixels within the input data.

Regarding claim 8, Lee discloses comparing a predetermined area with the predefined test pattern to determine if they match (col. 4, lines 50-56).

### ***Allowable Subject Matter***

4. Claims 7 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The present invention is directed to a method of adjusting the scanning frequency and phase of an analog-to-digital converter for use with a display device. Claim 7 identifies the uniquely distinct features increasing the scanning phase to determine a first boundary value, resetting the phase and then decreasing the phase to determine a second boundary and adjusting the scanning phase based on the average value of the first and second boundary values. The closest prior art, Naka, Lee, and Choi disclose methods of adjusting the phase of the scanning signal including either increasing or decreasing the phase to determine an optimum level, but fail to determine



the correct phase based on an average of two boundary readings, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571)272-7903. The examiner can normally be reached on M-F 8:30-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bipin Shalwala/  
Supervisory Patent Examiner, Art Unit 2629

Steven E. Holton  
Division 2629  
December 15, 2008